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ABSTRACT

The card games in this publication are an alternative activity to help students master computational skills. Games for operations with whole numbers, fractions, decimals, percents, integers, and square roots are included. They can be used to introduce math topics and for practice and review, with either the whole class or in small groups with 2 to 4 players for each game. Basically, the games provide an alternative method for generating problems while motivating students, with much practice involved. for each game, the concept, set up, rules of play, scoring method, points needed to win, and examples are given, and for most games, possible variations are indicated. (MNS)

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CALIFORNIA
DEMONSTRATION
MATHEMATICS PROGRAM

INNOVATIVE TEACHING
GAMES

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Hillview Junior High
Pittsburg Unified School District
Pittsburg, California

INNOVATIVE TEACHING CARD GAMES

The Innovative Teaching card games are an alternate activity to help students master their computational skills in math. They were created by chance. A deck of cards happened to be on the table when I was helping a group of students working on reading large numbers. Students took turns dealing out several cards and reading the number that resulted. Thus, "Read It" was developed. This game worked so well that I soon developed games for whole numbers, fractions, decimals, percents and integers. As we play the games we often come up with variations. As you try some of them you will probably develop your own new ways of playing too.

We use the Innovative Teaching (IT) games to introduce topics and for practice and review. We use them with the whole class and in small groups. Basically, they provide an alternate method for generating problems while motivating students. Some of our students actually do more computation during a period playing the IT games than they would on a worksheet full of problems.

All of the games are recommended for 2 - 4 players. The dealer is determined by drawing a card. The player with the highest card goes first. In the case of a tie for the highest number, those two players draw again. If you run out of cards before the game ends, reshuffle and continue playing.

Have fun playing the games and experimenting with your own variations. If you develop a new game or another way of playing one of these games that is successful, we would like to hear about it.

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DW:cd

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LEVEL A READ IT

CONCEPT: READ LARGE WHOLE NUMBERS

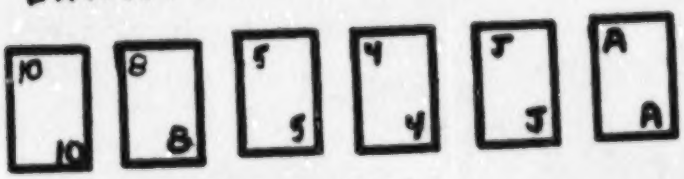
SET UP: FACE CARDS AND TENS ARE ZEROS
ACES ARE ONE

HOW TO PLAY: FIRST PLAYER TELLS DEALER HOW MANY CARDS TO DEAL (3 TO 10) CARDS ARE LAID FACE UP AND THE STUDENT READS THE NUMBER. (STUDENTS CAN PUT THE CARDS IN GROUPS OF THREE FOR EASIER READING.

SCORING: IF A STUDENT READS THE NUMBER CORRECTLY POINTS ARE EARNED FOR EACH CARD USED. 4 CARDS DEALT READ CORRECTLY 4 POINTS EARNED

WINNER: FIRST PERSON TO GET 50 POINTS WINS

EXAMPLE:



85,401
WOULD BE READ AS EIGHTY FIVE THOUSAND FOUR HUNDRED ONE

LEVEL A WRITE IT

CONCEPT: WRITE LARGE WHOLE NUMBERS

SAME AS READ IT GAME ABOVE EXCEPT STUDENT WRITES NUMBER ON PAPER

LEVEL A PLACE IT

CONCEPT: IDENTIFY PLACE VALUE

SET-UP: VALUE OF THE CARDS IS NOT NEEDED THEREFORE FACE CARDS ARE PLACE HOLDERS LIKE ALL OTHER CARDS

HOW TO PLAY: FIRST PLAYER IS DEALT 7 CARDS FACE UP. FROM LEFT TO RIGHT LOCATE FIRST FACE CARD (10 INCLUDED) OR HIGHEST CARD IF NO FACE CARDS IDENTIFY THIS PLACE

SCORING: IF STUDENT IDENTIFIES THE PLACE VALUE CORRECTLY POINTS ARE EARNED FOR THAT PLACE (3RD PLACE IS HUNDREDS SO 100 POINTS EARNED)

WINNER: FIRST PERSON TO EARN 5,000,000 POINTS WINS OR HIGHEST SCORE AFTER 5 ROUNDS OF PLAY OR A SPECIFIC TIME LIMIT.

EXAMPLE:

FIRST FACE CARD FROM LEFT TO RIGHT IS THE JACK. IT IS IN THE 10,000's PLACE SO 10,000 POINTS EARNED.

7 HIGHEST CARD FROM LEFT TO RIGHT IS 9 IT IS IN THE 100's PLACE SO 100 POINTS EARNED

LEVEL A EXPAND IT

CONCEPT: WRITE NUMBERS IN EXPANDED NOTATION

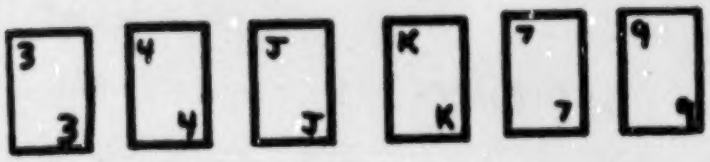
SET UP: FACE CARDS AND TENS ARE ZERO
ACES ARE ONE, PAPER AND PENCIL REQUIRED

HOW TO PLAY: FIRST PLAYER TELLS DEALER HOW MANY CARDS TO DEAL (3 TO 10). CARDS ARE LAID FACE UP AND THE PLAYER WRITES THE EXPANDED NOTATION OF THE NUMBER REPRESENTED BY THE CARDS. WHEN ARE CARDS ARE USED RESHUFFLE AND CONTINUE

SCORING: IF A STUDENT WRITES THE NUMBER IN EXPANDED FORM CORRECTLY, POINTS ARE EARNED FOR EACH CARD USED. 4 CARDS DEALT EXPANDED CORRECTLY 4 POINTS EARNED

WINNER: FIRST PERSON TO EARN 50 POINTS WINS

EXAMPLE:



$340,079$

$(3 \times 100,000) + (4 \times 10,000) + (7 \times 10) + (9 \times 1)$

6 CARDS ≡ 6 POINTS

VARIATIONS:

A) CONSTANT NUMBER OF CARDS DEALT ALWAYS THREE STRESS TO HUNDREDS PLACE ONLY

B) USE ELEMENTARY EXPANSION $415 = 400 + 10 + 5$

C) USE EXPONENTIAL NOTATION $41,030 = 4 \times 10^4 + 1 \times 10^3 + 3$

D) CHANGE NUMBERS OF POINTS TO WIN - TIME LIMIT OF 20 MINUTES - 5 ROUNDS OF EXPANSION

E) ALL STUDENTS IN CLASS DO THE SAME PROBLEM USE TO GENERATE PROBLEMS DURING LECTURE

LEVEL A ROUND IT 4

CONCEPT: ROUNDING WHOLE NUMBERS TO NEAREST SELECTED PLACE

SET-UP: FACE CARDS AND TENS ARE ZERO
ACES ARE ONE - ONE PAIR OF DICE

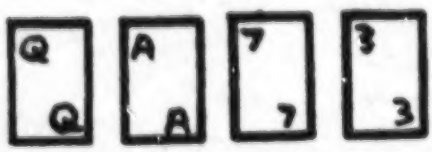
HOW TO PLAY: FIRST PLAYER ROLLS DICE
THE LARGER NUMBER IS THE AMOUNT OF CARDS DEALT AND THE SMALLER NUMBER IS THE NUMBER OF PLACES FROM THE RIGHT TO ROUND OFF TO. [EX. 1 = ONES PLACE, 2 = TENS PLACE, 3 = HUNDREDS PLACE AND SO ON]

CARDS ARE LAID FACE UP AND STUDENT ROUND TO CORRECT PLACE

SCORING: IF A STUDENT ROUNDS CORRECTLY THE ROUNDED NUMBER IS THE AMOUNT OF POINTS EARNED.

WINNER: FIRST PERSON TO REACH 1,000,000 IS THE WINNER.

EXAMPLE: → 4 CARDS DEALT ROUND TO TENS PLACE



→ 173

ROUNDED IS 170
170 POINTS EARNED

VARIATION: A) TIME LIMIT OR ROUND LIMIT ON GAME HIGHEST SCORE WINS
B) 4 CARDS DEALT ROUND TO 100's STRESSES 100's PLACE.

LEVEL B ADD IT

CONCEPT: ADD WHOLE NUMBERS

SET-UP: FACE CARDS AND TENS ARE ZERO
ACES ARE ONE

HOW TO PLAY: DEAL SIX CARDS TO EACH PERSON IN TWO GROUPS OF THREE EACH STUDENT THEN ADDS THEIR TWO THREE DIGIT NUMBERS TOGETHER. CARDS ARE THEN SET ASIDE AND SIX MORE CARDS ARE DEALT IN TWO GROUPS OF THREE AND TOTALED.

SCORING: THE TOTAL OF THE FIRST HAND IS ADDED TO THE TOTAL OF THE SECOND HAND. THE TOTAL IS THE AMOUNT OF POINTS EARNED

WINNER: FIRST PERSON TO GET 5,000 POINTS WINS OR HIGHEST SCORE AFTER A TIME LIMIT.

EXAMPLE:

→ 43

$$\begin{array}{r} +\ 920 \\ \hline 963 \end{array}$$

963 POINTS EARNED

VARIATIONS: CHANGE NUMBER OF CARDS IN GROUPS OR HAVE MORE GROUPS OF THREE.

LEVEL C — SUBTRACT IT 6

CONCEPT: SUBTRACT WHOLE NUMBERS

SET UP: SAME AS ADD IT

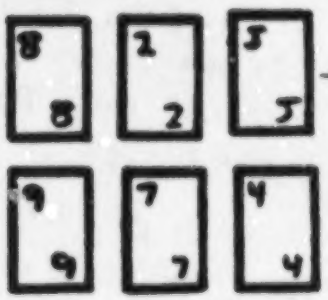
HOW TO PLAY: SAME AS ADD IT BUT SUBTRACT THE SMALLER THREE DIGIT NUMBER FROM THE LARGER

SCORING: SUBTRACT DIFFERENCES FROM EACH ROUND OF PLAY. THIS DIFFERENCE IS YOUR POINTS

WINNER: AFTER 6 ROUNDS THE PERSON WITH THE LOWEST SCORE WINS

EXAMPLE:

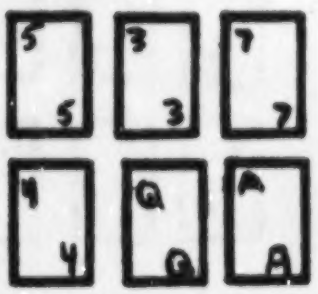
ROUND 1



974
- 820
154

154 IS SCORE

ROUND 2



537
- 401
136

ROUND 1 154
ROUND 2 − 136
18 POINTS AFTER ROUND 2

VARIATION: NUMBER OF CARDS IN EACH GROUP AND NUMBER OF ROUNDS PLAYED

LEVEL D MULTIPLY IT 7

CONCEPT: MULTIPLY WHOLE NUMBERS

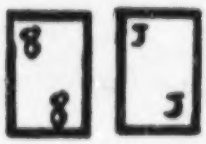
SET-UP: SAME AS ADD IT

HOW TO PLAY: DEAL OUT A TWO DIGIT MULTIPLICAND AND A ONE DIGIT MULTIPLIER. FIND THE PRODUCT SET CARDS ASIDE AND DEAL A SECOND ROUND AND SO ON.

SCORING: TOTAL THE PRODUCTS TOGETHER FROM EACH ROUND. THIS TOTAL IS POINTS EARNED.

WINNER: FIRST PERSON TO GET 5000 POINTS WINS

EXAMPLE:



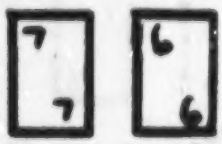
→ 80

→ X 5

400

400 POINTS FIRST ROUND

1ST ROUND 400
2ND ROUND 684
TOTAL 1084



→ 76

→ X 9

684

684 POINTS SECOND ROUND

VARIATIONS: CHANGE NUMBER OF CARDS IN MULTIPLICAND AND MULTIPLIER ALSO, TOTAL POINTS TO WIN

LEVEL E DIVIDE IT

CONCEPT: DIVIDE WHOLE NUMBERS

SET-UP: GAME WORKS BEST WITH FACE CARDS AND TENS REMOVED
ACES ARE ONE

HOW TO PLAY: FIRST PLAYER IS DEALT TWO CARDS FOR THE DIVIDEND AND ONE CARD FOR THE DIVISOR. THE QUOTIENT IS FOUND AND IS ROUNDED OFF TO THE NEAREST ONES. [IF FACE CARDS ARE USED YOU WILL NEED TO REDEAL THE DIVISOR CARD IF IT IS A FACE CARD SINCE DIVISION BY ZERO IS IMPOSSIBLE]

SCORING: THE ROUNDED QUOTIENT IS EQUIVALENT TO THE POINTS EARNED

WINNER: FIRST PERSON TO GET 100 POINTS WINS

EXAMPLES:

$$7\overline{)24} \quad 3\tfrac{3}{7} \quad \text{remainder } 3$$

QUOTIENT IS $3\frac{3}{7}$
ROUNDED TO 3
3 POINTS EARNED

$$3\overline{)56} \quad 18\tfrac{2}{3} \quad \text{remainder } 2$$

QUOTIENT IS $18\frac{2}{3}$ ROUNDED TO 19
19 POINTS EARNED

VARIATIONS: CHANGE NUMBER OF CARDS IN DIVISOR OR DIVIDEND OR BOTH.

LEVEL F+ MAKE IT

CONCEPT: ORDER OF OPERATIONS

SET UP: REMOVE ALL FACE CARDS TENS ARE TEN AND ACES ARE ONE.

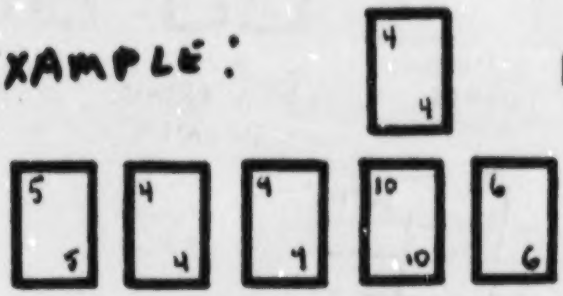
HOW TO PLAY: DEAL 5 CARDS TO EACH PLAYER AND TURN THE NEXT CARD FACE UP. THIS CARD IS WHAT YOU HAVE TO MAKE.

PLAYERS USE ALL OPERATIONS, COMPLEX FRACTIONS, ORDER OF OPERATIONS, PARENTHESIS AND LOGIC TO MAKE THEIR FIVE CARDS EQUAL THE VALUE OF THE CARD TURNED UP.

SCORING: FIRST PLAYER TO EXPLAIN HOW THEIR CARDS MADE IT EARN 10 POINTS

WINNER: FIRST PLAYER TO GET 50 POINTS WINS

EXAMPLE:



MAKE 4

$\frac{6+4}{10} = 1$

$5 \times \frac{6+4}{10} = 5$

$9 - \left(5 \times \frac{6+4}{10}\right) = 4$ 10 POINTS EARNED

VARIATIONS: USE TWO PLAYERS TO A TEAM

PLAYERS CAN USE FROM 3 TO 5 CARDS ON A TWO MINUTE TIME PERIOD

3 CARDS USED 2 POINTS, 4 CARDS USED 5 POINTS

ALL 5 CARDS USED 10 POINTS.

LEVEL G PRIME IT

CONCEPT: RECOGNIZE PRIME AND COMPOSITE NUMBERS

SET-UP: REMOVE FACE CARDS, ZEROS ARE TEN ACES ARE ONE

HOW TO PLAY: DEAL ONE CARD TO EACH PLAYER. PLAYERS DECIDE IF THEIR CARD IS PRIME OR COMPOSITE. A SECOND CARD IS THEN DEALT AND PLAYERS TOTAL THEIR TWO CARDS TOGETHER AND DECIDE IF THEIR SUM IS PRIME OR COMPOSITE. ANOTHER CARD IS DEALT AND SO ON UNTIL PLAYERS REACH A SUM OF 100 OR MORE. THEN THEY START OVER AGAIN WITH ONE CARD

SCORING: EVERY TIME YOUR SUM IS A PRIME NUMBER YOU EARN THAT MANY POINTS

WINNER: PERSON WITH THE HIGHEST POINT TOTAL WHEN TIME LIMIT [WE RECCOMMEND 20 MINUTES] IN THE WINNER.

EXAMPLE:

ROUND 1

PLAYER 1

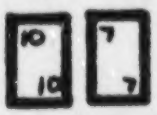
10 IS COMPOSITE
NO POINTS

PLAYER 2

3 IS PRIME
3 POINTS

ROUND 2

PLAYER 1



10 + 7 = 17
17 IS PRIME
17 POINTS

PLAYER 2

3 + 8 = 11
11 IS PRIME
11 POINTS

SCORE PAD

ROUND	1	2	3	4	TOTAL
PLAYER 1	0	17			
PLAYER 2	3	11			

VARIATIONS: A) WHEN YOUR SUM IS A PRIME SET ALL CARDS ASIDE AND START OVER

B) YOU CAN CHANGE THE LIMIT OF THE SUM OF THE CARDS TO 50, BEFORE STARTING OVER.

BOTH VARIATIONS STRESS SMALLER PRIME NUMBERS

LEVEL G — 3-6-9 — 11

CONCEPT: DIVISIBILITY RULE FOR THREE

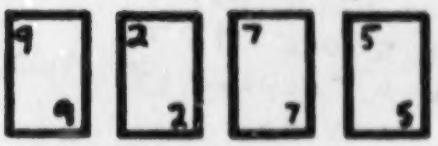
SET UP: REMOVE KINGS, QUEENS, JACKS AND TENS

HOW TO PLAY: DEAL 4 CARDS TO EACH PLAYER FACE UP. FIND THE SINGLE DIGIT SUM OF THE 4 CARDS (ORDER DOES NOT MATTER, SINCE SUM OF DIGITS WILL BE THE SAME)

SCORING: THE SINGLE DIGIT SUM IS THE SCORE.
IF YOUR SINGLE DIGIT SUM IS 3, 6 or 9 (DIVISIBLE by 3) YOU get 10 BONUS POINTS.

WINNER: HIGHEST SCORE WINS WHEN
A) DECK IS USED UP
B) 20 MINUTES OF PLAY
C) 100 POINTS REACHED
D) WHATEVER YOU DECIDE

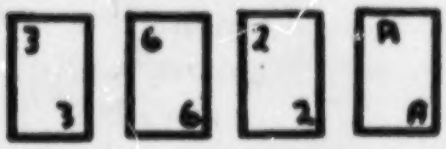
EXAMPLES:



$9+2+7+5=23$
$2+3=5$

5 POINTS FOR SINGLE DIGIT SUM

NO BONUS POINTS BECAUSE 5 IS NOT DIVISIBLE BY 3



$3+6+2+1=12$
$1+2=3$

3 POINTS FOR SINGLE DIGIT SUM

10 BONUS POINTS BECAUSE 3 DIVISIBLE BY 3

TOTAL SCORE 13 POINTS

LEVEL G MULTIPLES 12

CONCEPT: LOWEST COMMON MULTIPLES

SET-UP: 4 PLAYERS — PARTNERS
REMOVE FACE CARDS, TENS AND ACES

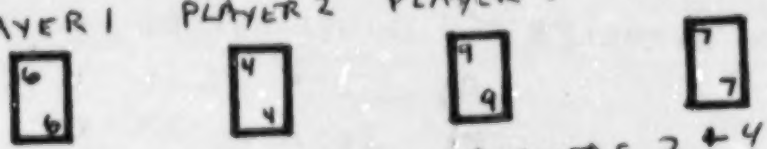
HOW TO PLAY: DEAL ONE CARD TO EACH PERSON FACE UP. PARTNERS FIND LOWEST COMMON MULTIPLE OF THEIR TWO CARDS

SCORING: WHATEVER THE LOWEST COMMON MULTIPLE IS THE PARTNERS EARN THAT MANY POINTS

WINNER: AFTER 8 ROUNDS (ALL CARDS IN DECK USED) GAME IS OVER. LOWEST SCORE WINS

EXAMPLE: PARTNERS 1 & 3, 2 & 4

PLAYER 1 PLAYER 2 PLAYER 3 PLAYER 4



PLAYERS 1 & 3
6 AND 9 LCM = 18
18 POINTS

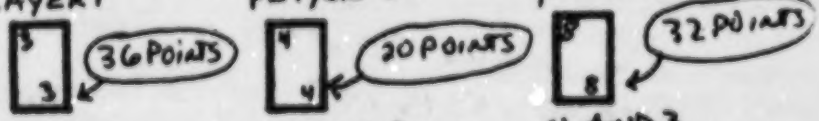
PLAYERS 2 & 4
4 AND 7 LCM = 28
28 POINTS

VARIATIONS: A) 2-4 players NO partners
DEAL 2 CARDS TO EACH PLAYER
WINNER IS LOWEST SCORE AFTER
4 ROUNDS (4 PLAYERS) 5 ROUNDS (3 PLAYERS)
AND 8 ROUNDS 2 PLAYERS

B) EACH PLAYER RECEIVES 3 CARDS

C) 3 PLAYERS DEAL ONE CARD TO EACH PLAYER COMPARE CARD TO OTHER PLAYER'S CARD

PLAYER 1 PLAYER 2 PLAYER 3



3 AND 4 LCM = 12
3 AND 8 LCM = 24

4 AND 3 LCM = 12
4 AND 8 LCM = 8

8 AND 3 LCM = 24
8 AND 4 LCM = 8

LEVEL H CHANGE IT 13

CONCEPT: CHANGE IMPROPER FRACTIONS TO MIXED OR WHOLE NUMBERS

SET-UP: REMOVE FACE CARDS AND ACES TENS ARE TEN

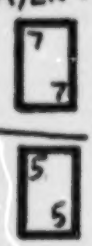
HOW TO PLAY: DEAL TWO CARDS TO EACH PLAYER. THE LARGER CARD IS THE NUMERATOR AND THE SMALLER CARD IS THE DENOMINATOR. EACH PLAYER CHANGES THEIR IMPROPER FRACTION TO A MIXED OR WHOLE NUMBER AND SIMPLIFY IF POSSIBLE. THOSE CARDS ARE SET ASIDE AND TWO MORE CARDS ARE DEALT.

SCORING: AFTER EACH ROUND PLAYERS EARN POINTS EQUAL TO THE WHOLE NUMBER OF THEIR MIXED OR WHOLE NUMBER OBTAINED

WINNER: THE PLAYER WITH THE HIGHEST SCORE WINS WHEN ALL THE CARDS HAVE BEEN USED

EXAMPLE:

PLAYER 1



$= \frac{7}{5} = 1\frac{2}{5}$

1 POINT

PLAYER 2

$= \frac{9}{3} = 3$

3 POINTS

PLAYER 3

$= \frac{6}{4} = 1\frac{2}{4} = 1\frac{1}{2}$

1 POINT

VARIATION: ROUND FRACTION TO NEAREST WHOLE NUMBER FOR SCORING.

$1\frac{2}{5} \rightarrow 1 \quad 3 \rightarrow 3 \quad 1\frac{1}{2} \rightarrow 2$

LEVEL H CHANGE IT X 14

CONCEPT: CHANGE IMPROPER FRACTIONS AND MULTIPLICATION OF FRACTIONS

SET-UP: REMOVE FACE CARDS, ACES AND SEVENS ARE OPTIONAL
TENS ARE TEN

HOW TO PLAY: SAME AS CHANGE IT
SCORING IS DIFFERENT

SCORING: AFTER THE FIRST TWO ROUNDS PLAYERS EARN POINTS FOR THE PRODUCT OF THEIR TWO CHANGED FRACTIONS

WINNER: HIGHEST SCORE WINS WHEN ALL CARDS ARE USED

EXAMPLE:

	PLAYER 1	PLAYER 2
ROUND 1	$\frac{6}{3} = 2$	$\frac{8}{5} = 1\frac{3}{5}$
ROUND 2	$\frac{8}{6} = 1\frac{2}{6} = 1\frac{1}{3}$	$\frac{10}{3} = 3\frac{1}{3}$
SCORING	$2 \times 1\frac{1}{3}$ $2 \times \frac{4}{3} = \frac{8}{3} = 2\frac{2}{3}$ $2\frac{2}{3}$ POINTS	$1\frac{3}{5} \times 3\frac{1}{3}$ $\frac{8}{5} \times \frac{10}{3} = \frac{16}{3} = 5\frac{1}{3}$ $5\frac{1}{3}$ POINTS
ROUND 3	$\frac{3}{2} = 1\frac{1}{2}$	$\frac{6}{4} = 1\frac{2}{4} = 1\frac{1}{2}$
SCORING	$2\frac{2}{3} \times 1\frac{1}{2}$ $\frac{8}{3} \times \frac{3}{2} = 4$ POINTS	$5\frac{1}{3} \times 1\frac{1}{2}$ $\frac{16}{3} \times \frac{3}{2} = 8$ POINTS

LEVEL H — CHANGE IT ÷

CONCEPT: CHANGE IMPROPER FRACTIONS AND DIVISION OF FRACTIONS

HOW TO PLAY: SAME AS CHANGE IT X
SCORING IS DIFFERENT

SCORING: AFTER THE FIRST TWO ROUNDS PLAYERS EARN POINTS FOR THE QUOTIENT OF THEIR TWO CHANGED FRACTIONS

WINNER: THE PLAYER WITH THE LOWEST SCORE WINS WHEN ALL CARDS ARE USED

LEVEL HA — CHANGE IT +

CONCEPT: CHANGE IMPROPER FRACTIONS AND ADDITION OF FRACTIONS

HOW TO PLAY: SAME AS CHANGE IT X
SCORING IS DIFFERENT

SCORING: AFTER THE FIRST TWO ROUNDS PLAYERS EARN POINTS FOR THE SUM OF THER TWO CHANGED FRACTIONS

WINNER: THE PLAYER WITH THE HIGHEST SCORE WINS WHEN ALL CARDS ARE USED

LEVEL HA — CHANGE IT −

CONCEPT: CHANGE IMPROPER FRACTIONS AND SUBTRACTION OF FRACTIONS

HOW TO PLAY: SAME AS CHANGE IT X
SCORING IS DIFFERENT

SCORING: AFTER THE FIRST TWO ROUNDS PLAYERS EARN POINTS FOR THE DIFFERENCE OF THEIR TWO CHANGED FRACTIONS

WINNER: THE PLAYER WITH THE LOWEST SCORE WINS WHEN ALL CARDS ARE USED

* STUDENTS MAY WISH TO DROP THE FRACTIONAL PART OF THEIR SCORE IF THE FRACTION IS TOO LARGE TO WORK WITH

LEVEL HA CHANGE IT - BREAKDOWN

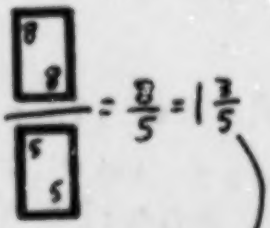
CONCEPT: CHANGE IMPROPER FRACTIONS AND SUBTRACTION OF FRACTIONS

HOW TO PLAY: SAME AS CHANGE IT — SCORING IS DIFFERENT

SCORING: EACH PLAYER START WITH 20 POINTS AND SUBTRACTS EACH FRACTION CHANGED

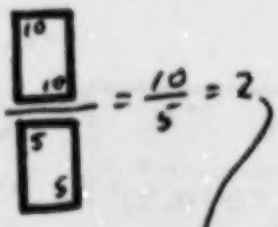
WINNER: THE PLAYER WHOSE SUBTRAHEND IS LARGER THAN THE MINUEND WINS

EXAMPLE:



$= \frac{8}{5} = 1\frac{3}{5}$

$$\begin{array}{r} 20 \\ -\ 1\ 3/5 \\ \hline 18\ 3/5 \end{array}$$



$= \frac{10}{5} = 2$

$$\begin{array}{r} 20 \\ -\ 2 \\ \hline 18 \end{array}$$

20 ← MINUEND
2 ← SUBTRAHEND

* PLAYERS MAY DROP THE FRACTIONAL PART OF THEIR ONLY ONCE IN THIS GAME [FRACTION TOO LARGE TO WORK WITH OR STRATEGY]

LEVEL I CHANGE IT + - × ÷

CONCEPT: OPERATIONS WITH FRACTIONS

HOW TO PLAY: SAME AS CHANGE IT × SCORING IS DIFFERENT

SCORING: AFTER THE FIRST TWO ROUNDS PLAYERS EARN POINTS FOR THE SUM (ADD) OF THEIR TWO CHANGED FRACTIONS. THIRD ROUND FIND DIFFERENCE (SUBTRACT) OF FRACTION CHANGED AND FRACTION OBTAINED FROM SUM. FOURTH ROUND FIND PRODUCT (MULTIPLY) AND FIFTH ROUND FIND QUOTIENT (DIVIDE).

WINNER: THE PLAYER WITH THE HIGHEST SCORE AFTER 5 ROUNDS WINS. CARDS MAY NEED TO BE RESHUFFLED

LEVEL I CHANGE AND COMPARE IT

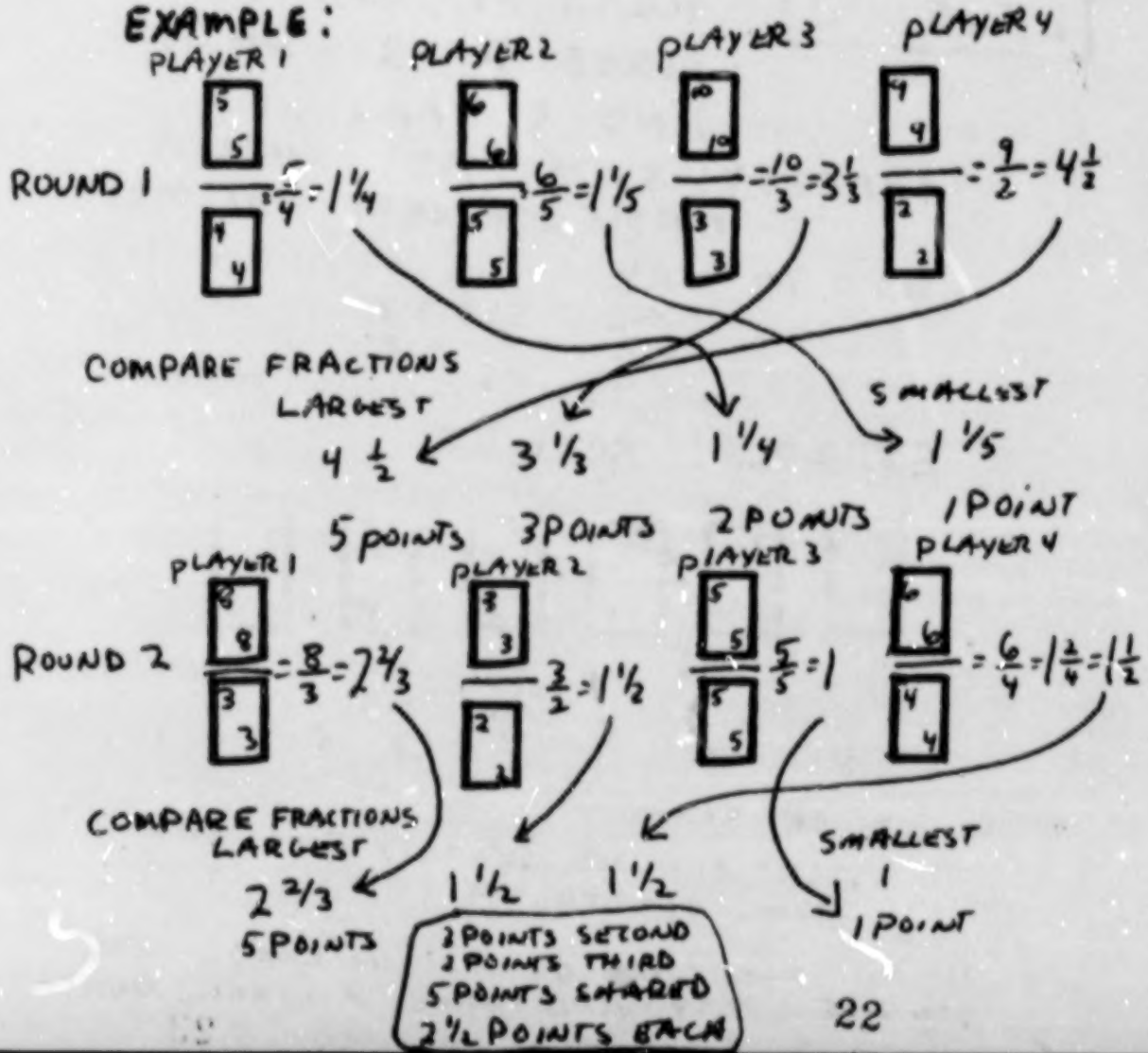
CONCEPT: CHANGE AND COMPARE FRACTIONS

HOW TO PLAY: SAME AS CHANGE IT
SCORING IS DIFFERENT

SCORING: PLAYERS COMPARE THEIR FRACTIONS OBTAINED FROM CHANGING
LARGEST FRACTION EARNS 5 POINTS
SECOND LARGEST EARNS 3 POINTS
THIRD LARGEST EARNS 2 POINTS
AND SMALLEST EARNS 1 POINT

WINNER: THE PLAYER WITH THE HIGHEST SCORE WINS AFTER ALL CARDS OR USED

EXAMPLE:



VARIATION OF CHANGE IT

FOR ALL CHANGE IT GAMES EXCEPT THE FIRST ONE CALLED CHANGE IT DEAL TWO CARDS TO EACH PLAYER FIRST CARD IS NUMERATOR SECOND CARD IS DENOMINATOR KEEP ACES IN GAME

EXAMPLE: 1ST CARD

2ND CARD

THIS WAY YOU CAN HAVE PROPER FRACTIONS ALSO

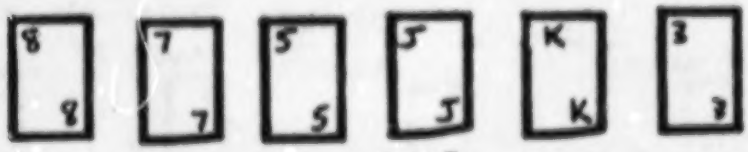
LEVEL J

READ IT, WRITE IT
PLACE IT, ROUND IT
AND EXPAND IT

CONCEPT: SAME AS LEVEL A GAMES EXCEPT DECIMALS

HOW TO PLAY: SAME AS LEVEL A GAMES EXCEPT FROM LEFT TO RIGHT FIRST FACE CARD OR TEN IS A DECIMAL POINT

EXAMPLE: READ IT



8 7 5 . 0 3

WOULD BE READ

EIGHT HUNDRED SEVENTY FIVE AND THREE HUNDREDTHS.

* IF NO FACE CARD OR TEN IN CARDS DEALT YOU ARE LUCKY AND HAVE A WHOLE NUMBER

LEVEL K ADD IT.

CONCEPT: ADD DECIMALS

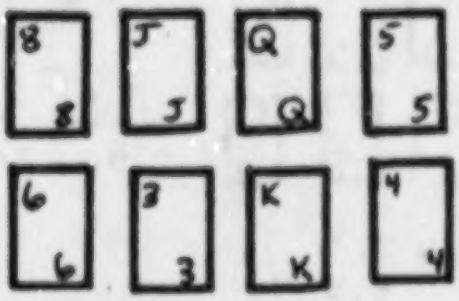
SET-UP: FACE CARDS AND TENS ARE ZERO ACES ARE ONE. SCRATCH PAPER

HOW TO PLAY: DEAL TWO GROUPS OF FOUR CARDS TO EACH PLAYER. PLAYERS WRITE DOWN BOTH NUMBERS AND ADD THEM TOGETHER [SEE LEVEL J GAMES PAGE 18 FOR DECIMAL POINT] CARDS ARE SET ASIDE AND ANOTHER TWO GROUPS OF FOUR CARDS IS DEALT

SCORING: THE SUM OF THE TWO GROUPS IS THE POINTS EARNED. CONTINUE ADDING THE SUMS OF EACH ROUND TOGETHER

WINNER: THE PERSON WITH THE HIGHEST SCORE AFTER 5 ROUNDS OF PLAY IS THE WINNER

EXAMPLE:



$$\begin{array}{r} 8.05 \\ +63.4 \\ \hline 71.45 \end{array}$$

71.45 POINTS EARNED ROUND 1

LEVEL K SUBTRACT IT.

CONCEPT: SUBTRACT DECIMALS

VARIATION OF ADD IT. FIND THE DIFFERENCE OF THE TWO GROUPS OF FOUR LARGER NUMBER AS MINUEND (TOP) AND SMALLER NUMBER AS SUBTRAHEND (BOTTOM)
WINNER IS LOWEST SCORE 24

LEVEL L MULTIPLY IT. 20

CONCEPT: MULTIPLICATION OF DECIMALS

SET-UP: SAME AS ADD IT.

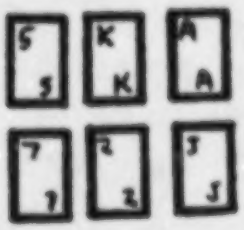
HOW TO PLAY: DEAL TWO GROUPS OF THREE CARDS TO EACH PLAYER
WRITE DOWN NUMBERS REPRESENTED FROM THE CARDS
[SEE LEVEL J GAMES FOR DECIMAL PLACEMENT]
MULTIPLY TOGETHER KEEP THE PRODUCT AND SET CARDS ASIDE.

SCORING: AFTER EACH ROUND TOTAL THE PRODUCTS TOGETHER

WINNER: AFTER 5 ROUNDS PLAYER WITH HIGHEST SCORE WINS

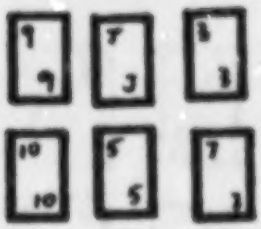
EXAMPLE:

ROUND 1



$$\begin{array}{r} 5.1 \\ \times\ 72. \\ \hline 367.2 \end{array}$$

ROUND 2



$$\begin{array}{r} 9.3 \\ \times\ .57 \\ \hline 5.301 \end{array}$$

SCORE

$$\begin{array}{r} 367.2 \\ +\ \ 5.301 \\ \hline 372.501 \end{array}$$

VARIATIONS: CHANGE NUMBER OF CARDS IN EACH GROUP
HAVE A CONSTANT MULTIPLIER OF .01 FOR EXAMPLE

LEVEL MA DIVIDE IT. 21

CONCEPT: DIVISION OF DECIMALS

SET-UP: SAME AS ADD IT.

HOW TO PLAY: EACH PLAYER IS DEALT ONE CARD FOR THE DIVISOR [IF IT IS A FACE CARD OR TEN PUT BACK IN DECK AND DEAL AGAIN] AND FOUR CARDS FOR THE DIVIDEND. WRITE THE DIVIDEND AS A DECIMAL NUMBER [SEE LEVEL J GAMES FOR DECIMAL PLACEMENT] DIVIDE PROBLEM KEEP QUOTIENT SET ASIDE CARDS AND START ROUND 2.

SCORING: THE SUM OF THE QUOTIENTS FOR EACH ROUND IS THE POINTS EARNED. [IF REPEATING DECIMAL ROUND OFF TO HUNDREDTHS PLACE]

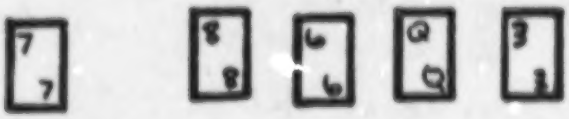
WINNER: THE PERSON WITH THE HIGHEST SCORE AFTER 5 ROUNDS WINS

EXAMPLE:

ROUND 1

$$5\overline{)9.02} = 1.804$$

$$\begin{array}{r} 5 \\ \hline 40 \\ 40 \\ \hline 020 \end{array}$$

ROUND 2 

$$7\overline{)86.3} = 12.728 \equiv 12.73$$

$$\begin{array}{r} 7 \\ \hline 16 \\ 14 \\ \hline 23 \\ 21 \\ \hline 20 \\ 14 \\ \hline 60 \end{array}$$

SCORE

$$\begin{array}{r} 1.804 \\ 12.73 \\ \hline 14.534 \end{array}$$

LEVEL MA DECIMAL IT 22

CONCEPT: FRACTION TO DECIMAL

SET-UP: REMOVE FACE CARDS, ACES AND TENS

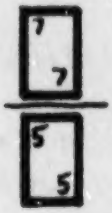
HOW TO PLAY: DEAL TWO CARDS TO EACH PLAYER. FIRST CARD IS NUMERATOR SECOND CARD IS DENOMINATOR. CHANGE FRACTIONS TO DECIMALS

SCORING: AFTER TWO ROUNDS ADD THE DECIMALS TOGETHER SUM IS POINTS EARNED

WINNER: AFTER 5 ROUNDS PLAYER WITH HIGHEST POINTS WINS

EXAMPLE:

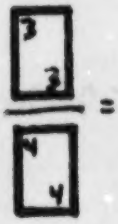
ROUND 1



$= \frac{7}{5}$

$5\overline{)7.0}$ → 1.4, $\frac{5}{2.0}$

ROUND 2



$= \frac{3}{4}$

$4\overline{)3.00}$ → $.75$, $\frac{28}{20}$

SCORE

$$\begin{array}{r} 1.4 \\ +\ .75 \\ \hline 2.15 \end{array}$$

* REPEATING DECIMALS ROUND OFF TO NEAREST HUNDREDTHS

VARIATIONS: A) AFTER EACH ROUND YOU CAN DECIDE WHAT TO DO WITH THE QUOTIENTS ADD, SUBTRACT, MULTIPLY OR DIVIDE

B) CHANGE NUMBER OF CARDS IN NUMERATOR AND DENOMINATOR

C) ROUND ALL ANSWERS OFF TO 10THS, 100THS, 1000THS

d) Put down 4 CARDS WRITE AS DECIMAL CHANGE TO FRACTIONS

[SEE LEVEL T GAMES FOR DECIMAL PLACEMENT]

LEVEL PA PERCENT IT 23

CONCEPT: CHANGE FRACTION TO PERCENT

SET-UP: REMOVE FACE CARDS AND ACES
TENS ARE TEN

HOW TO PLAY: DEAL TWO CARDS TO EACH PLAYER. FIRST CARD IS NUMERATOR SECOND CARD IS DENOMINATOR. CHANGE FRACTION TO PERCENT. ROUND OFF TO THE NEAREST PERCENT.

SCORING: POINTS ARE EARNED BASED ON THE PERCENT OBTAINED.

WINNER: THE PLAYER WITH THE HIGHEST SCORE AFTER ALL CARDS ARE USED WINS

EXAMPLES:

$= \frac{5}{8}$

$8\overline{)5.0}$ $.62\frac{4}{8} = .63$

48

20

16

4

63%

63 POINTS

$= \frac{10}{7}$

$7\overline{)10.00}$ $1.42\frac{6}{7} = 1.43$

7

30

28

20

14

143%

143 POINTS

VARIATIONS: CHANGE NUMBER OF CARDS IN DENOMINATOR OR NUMERATOR
[TENS WOULD HAVE TO BE REMOVED]

$\frac{81}{54} = \frac{9}{6} = \frac{3}{2}$

$2\overline{)3.00}$ 1.50

150%

150 POINTS

LEVEL PA CHANGE IT % 24

CONCEPT: CHANGE PERCENTS TO FRACTIONS

SET-UP: FACE CARDS AND TENS ARE ZERO
ACES ARE ONE

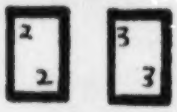
HOW TO PLAY: DEAL TWO CARDS TO EACH PLAYER. THIS IS THEIR PERCENT. NOW CHANGE PERCENT TO A FRACTION. REDUCE THE FRACTION. END OF ROUND 1 SET CARDS ASIDE AND DEAL TWO MORE CARDS

SCORING: THE NUMERATOR OF THE REDUCED FRACTIONS IS YOUR POINTS EARNED

WINNER: THE PLAYER WITH THE HIGHEST SCORE AFTER ALL CARDS ARE DEALT WINS

EXAMPLES:

ROUND 1

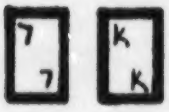


$= 23\% = \frac{23}{100}$ 23 POINTS

ROUND 2

$= 18\% = \frac{18}{100} = \frac{9}{50}$ 9 POINTS

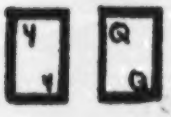
ROUND 3



$= 70\% = \frac{70}{100} = \frac{7}{10}$ 7 POINTS

VARIATION: SAME AS ABOVE EXCEPT CHANGE % TO A DECIMAL ADD DECIMALS TOGETHER FOR SCORES

EXAMPLE!



$= 40\% = .40$ .40 POINTS

LEVEL PA FIND IT A

CONCEPT: FIND THE PERCENT WHEN THE WHOLE AND PART ARE GIVEN

SET-UP: FACE CARDS AND TENS ARE ~~TEN~~ ZERO
ACES ARE ONE
[WE TEACH PERCENTS USING RATIOS AND THE PERCENT FORMULA A% of B is C]

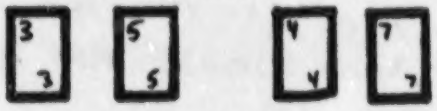
HOW TO PLAY: DEAL TWO CARDS TO EACH PLAYER. THESE CARDS ARE THE B (WHOLE) PART. THEN DEAL TWO MORE CARDS. THESE CARDS ARE THE C (PART OF WHOLE) PART. NOW FIND THE PERCENT ROUNDING TO THE NEAREST PERCENT. END OF ROUND ONE SET CARDS ASIDE AND DEAL OUT SECOND ROUND

SCORING: WHATEVER THE PERCENT OBTAINED IS, IS YOUR POINTS EARNED

WINNER: THE PLAYER WITH THE HIGHEST AMOUNT OF POINTS WHEN ALL THE CARDS ARE USED WINS.

EXAMPLES:

ROUND 1



A% of 35 = 47

$\frac{A}{100} = \frac{47}{35}$

$134\frac{10}{35} = 134\%$

35 | 4700
35
120
105
150
140
10

134 POINTS

ROUND 2

A% of 85 = 04

$\frac{A}{100} = \frac{4}{85}$

$4\frac{60}{85} = 5\%$

85 | 400
340
60

5 POINTS

* IF BOTH CARDS ARE FACE CARDS YOU SCORE 0 (ZERO) POINTS

LEVEL PA FIND IT B

CONCEPT: FIND THE WHOLE WHEN THE PERCENT AND PART OF WHOLE ARE GIVEN

SET-UP: SAME AS FIND IT A

HOW TO PLAY: SAME AS FIND IT A EXCEPT FIRST TWO CARDS ARE YOUR PERCENT

SCORING: WHATEVER THE WHOLE OBTAINED IS, IS YOUR POINTS EARNED.

WINNER: SAME AS FIND IT A

EXAMPLES:

ROUND 1

73% of B is 05

$\frac{73}{100} = \frac{5}{B}$

$6\frac{62}{73} = 7$

$73\overline{)500}$

438

62

7 POINTS

ROUND 2

40% of B is 83

$\frac{40}{100} = \frac{83}{B}$

$207\frac{20}{40} = 208$

$40\overline{)8300}$

80

300

280

20

208 POINTS

LEVEL PA FIND IT C

CONCEPT: FIND THE PART WHEN THE PERCENT AND WHOLE ARE GIVEN

SET UP: SAME AS FIND IT A

HOW TO PLAY: SAME AS FIND IT A, EXCEPT FIRST TWO CARDS (PERCENT) A. NEXT TWO CARDS (WHOLE) B.

SCORING: WHATEVER THE PART OF THE WHOLE OBTAINED IS, IS YOUR POINTS EARNED

WINNER: SAME AS FIND IT A

EXAMPLE: ROUND 1

70% of 8 is C

$\frac{70}{100} = \frac{C}{8}$

$5\frac{60}{100} = 6$

$100\overline{)560}$

500

60

6 POINTS

LEVEL PA RATE IT

CONCEPT: FIND RATE OF INCREASE OR DECREASE

SET-UP: REMOVE FACE CARDS TENS ARE TEN ACES ARE ONE

HOW TO PLAY: DEAL TWO CARDS TO EACH PLAYER FIRST CARD IS ORIGINAL PRICE SECOND CARD IS FINAL PRICE. FIND THE RATE OF INCREASE OR DECREASE [ROUND TO NEAREST PERCENT]

SCORING: POINTS ARE EARNED FOR RATE OF INCREASE OR DECREASE [ALL POSITIVE POINTS]

WINNER: THE PLAYER WITH THE HIGHEST SCORE WHEN ALL CARDS ARE USED WINS

EXAMPLE:

$$\frac{\text{CHANGE}}{\text{ORIGINAL PRICE}} = \frac{1}{7}$$

$14\frac{2}{7} = 14\%$ 14 POINTS

$$7\overline{)1.00}$$
$$\begin{array}{r} 7 \\ \hline 30 \\ 28 \end{array}$$

VARIATIONS: DEAL TWO CARDS AS ORIGINAL PRICE [REMOVE TENS] AND ONE CARD AS THE CHANGE IN PRICE

$$\frac{\text{CHANGE}}{\text{ORIGINAL PRICE}} \quad \frac{6}{81}$$

$$81\overline{)6.00}$$
$$\begin{array}{r} .07\frac{33}{81} \\ \hline 567 \\ \hline 33 \end{array}$$

$= 7\%$ RATE OF CHANGE

7 POINTS

DEAL TWO CARDS AS ORIGINAL PRICE AND TWO CARDS AS FINAL PRICE

LEVEL PA DISCOUNT IT A

CONCEPT: FIND THE AMOUNT OF DISCOUNT

SET-UP: FACE CARDS AND TENS ARE ZERO
ACES ARE ONE

HOW TO PLAY: DEAL TWO CARDS TO EACH PLAYER THESE CARDS ARE THE RATE DISCOUNT. DEAL TWO MORE CARDS THIS IS THE REGULAR PRICE. NOW FIND THE AMOUNT OF DISCOUNT [ROUND TO NEAREST DOLLAR]

SCORING: THE AMOUNT OF DISCOUNT OBTAINED IS YOUR POINTS EARNED.

WINNER: SAME AS FIND IT A

EXAMPLE:

DISCOUNT 30%

REGULAR PRICE $56

$\frac{30}{100} = \frac{c}{56}$

$100\overline{)1680}$ 16.8

$17 AMOUNT OF DISCOUNT

17 POINTS

VARIATION: ROUND AMOUNT OF DISCOUNT TO NEAREST CENT.

LEVEL PA DISCOUNT IT B

CONCEPT: FIND THE SALE PRICE

SAME AS DISCOUNT IT A BUT FIND THE SALE PRICE. SALE PRICE IS AMOUNT OF POINTS EARNED [OPTION ROUND TO NEAREST CENT]

EXAMPLE:

37% DISCOUNT REGULAR PRICE $10.00

A) 37%

$\frac{37}{100} = \frac{c}{10}$

$100\overline{)370}$ 3.7 = 4 DOLLARS OFF

SALE PRICE $6.00

B) 37% DISCOUNT
63% OF REGULAR PRICE

$\frac{63}{100} = \frac{c}{10}$

$100\overline{)630}$ 6.3 = 6 SALE PRICE $6.00

LEVEL PA DISCOUNT IT C

CONCEPT: FIND RATE OF DISCOUNT

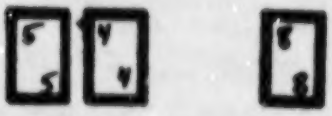
SET-UP: SAME AS DISCOUNT IT A

HOW TO PLAY: DEAL TWO CARDS TO EACH PLAYER. THESE CARDS ARE THE REGULAR PRICE. DEAL ONE MORE CARD TO EACH PLAYER. THIS CARD IS THE AMOUNT DISCOUNTED FIND THE RATE OF DISCOUNT

SCORING: THE RATE OF DISCOUNT IS THE POINTS EARNED

WINNER: SAME DISCOUNT IT A

EXAMPLE:



REGULAR PRICE — AMOUNT OFF

$\frac{A}{100} = \frac{8}{54}$

$54 \overline{)800}$ — $14\frac{44}{54}$ = 15% RATE OF DISCOUNT

54
260
216
44

15 POINTS

LEVEL PA COMMISSION IT

CONCEPT: FIND AMOUNT OF COMISSION

SET-UP: SAME AS DISCOUNT IT A

HOW TO PLAY: DEAL ONE CARD TO EACH PLAYER, IF IT IS A FACE CARD REDEAL TO THAT PLAYER. NOW DEAL FOUR CARDS OUT THIS IS THE AMOUNT OF SALES EVERY ONE USES SAME FOUR CARDS. FIND AMOUNT OF COMMISSION

SCORING: THE AMOUNT OF COMISSION OBTAINED IS THE POINTS EARNED [ROUND OFF NEAREST DOLLAR]

WINNER: SAME AS DISCOUNT IT A

EXAMPLE:

$4,301

6% of $4,301 = $258
258 POINTS

8% of 4301 = $344
344 POINTS

LEVEL W ADD-IN 30

CONCEPT: ADDITION OF INTEGERS

SET-UP: REMOVE FACE CARDS
ACES ARE ONE
TENS ARE TEN
BLACK CARDS ARE POSITIVE
RED CARDS ARE NEGATIVE

HOW TO PLAY:
DEAL 4 CARDS TO EACH PLAYER THEN THEY ADD THE CARDS TOGETHER. AFTER EACH ROUND SET CARDS ASIDE AND DEAL 4 MORE CARDS TO EACH PLAYER

SCORING: YOU SCORE POINTS BASED ON THE SUM OF THE INTEGERS

WINNER: PERSON WITH THE HIGHEST SCORE AFTER ALL CARDS ARE USED WINS

EXAMPLE:

ROUND 1

RED BLACK RED RED

$-1 + 7 + -8 + -4$

$-13 + 7 = -6$

SCORE -6

ROUND 2

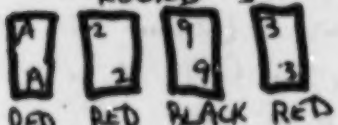
BLACK BLACK RED BLACK

$3 + 10 + -5 + 9$

$22 + -5 = 17$

SCORE 17

ROUND 3



RED RED BLACK RED

$-1 + -2 + 9 + -3$

$9 + -6 = 3$

SCORE 3

TOTAL SCORE

ROUND 1	-6
ROUND 2	17
TOTAL	11
ROUND 3	3
TOTAL	14

LEVEL W SUB-IN

CONCEPT: SUBTRACTION OF INTEGERS

SET-UP: SAME AS ADD-IN

HOW TO PLAY: DEAL 2 CARDS TO EACH PLAYER FIRST CARD IS MINUEND SECOND CARD IS SUBTRAHEND. FIND THE DIFFERENCE OF THE TWO CARDS. THEN SET CARDS ASIDE AND DEAL TWO MORE CARDS TO EACH PLAYER

SCORING: YOU EARN POINTS BASED ON THE DIFFERENCE OF THE INTEGERS EACH ROUND IS TOTALED

WINNER: PERSON WITH THE HIGHEST SCORE AFTER ALL CARDS ARE USED WINS

EXAMPLE:

ROUND 1

PLAYER 1	PLAYER 2
BLACK RED	BLACK BLACK
$4 - -7 = 11$	$8 - 1 = 7$
11 POINTS	7 POINTS

ROUND 2

PLAYER 1	PLAYER 2
RED BLACK	RED BLACK
$-6 - 7 = -13$	$-10 - 3 = -13$
-13 POINTS	-13 POINTS

ROUND 3

PLAYER 1	PLAYER 2
BLACK RED	RED RED
$5 - -7 = 12$	$-9 - -2 = -7$
12 POINTS	-7 POINTS

TOTAL SCORE

	PLAYER 1	PLAYER 2
ROUND 1	11	7
ROUND 2	-13	-13
TOTAL	-2	-6
ROUND 3	12	-7
TOTAL	10	-13

LEVEL W MULT-IN

CONCEPT: MULTIPLICATION OF INTEGERS

SET-UP: SAME AS ADD IN

HOW TO PLAY: DEAL TWO CARDS TO EACH PLAYER THEN THEY MULTIPLY THE CARDS TOGETHER AFTER EACH ROUND SET CARDS ASIDE AND DEAL 2 MORE CARDS TO EACH PLAYER

SCORING: YOU EARN POINTS BASED ON THE PRODUCT OF THE INTEGERS EACH ROUND IS TOTALED

WINNER: PERSON WITH THE HIGHEST SCORE AFTER ALL CARDS ARE USED WINS

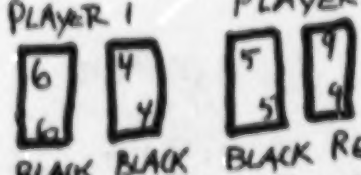
EXAMPLE:

ROUND 1

$-3 \times 5 = -15$ $-7 \times -4 = 28$

-15 points 28 points

ROUND 2



$6 \times 4 = 24$ $5 \times -9 = -45$

24 points -45 points

ROUND 3

$-4 \times 8 = -32$ $-7 \times -6 = 42$

-32 POINTS 42 POINTS

TOTAL SCORE	PLAYER 1	PLAYER 2
ROUND 1	-15	28
ROUND 2	24	-45
TOTAL	9	-17
ROUND 3	-32	42
TOTAL	-23	25

LEVEL W DIV-IN

CONCEPT: DIVISION OF INTEGERS

SET-UP: SAME AS ADD-IN

HOW TO PLAY: DEAL TWO CARDS TO EACH PLAYER. THEY FIND THE PRODUCT OF THE TWO CARDS [SAME AS MULT-IN] THIS PRODUCT BECOMES THE DIVIDEND DEAL ONE MORE CARD TO EACH PLAYER. THIS CARD IS THE DIVISOR. NOW FIND THE QUOTIENT. ROUND OFF TO NEAREST INTEGER. AFTER EACH ROUND SET CARDS ASIDE AND DEAL TWO MORE CARDS AND THEN ONE CARD TO EACH PLAYER. ~~TOTAL EACH ROUND~~

SCORING: YOU EARN POINTS FOR THE QUOTIENT OF THE INTEGERS. TOTAL EACH ROUND PLAYED

WINNER: PERSON WITH THE HIGHEST SCORE AFTER ALL CARDS ARE USED, WINS.

EXAMPLE:

ROUND 1

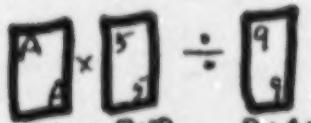
RED BLACK RED

-4×3

$-12 \div -7 = 1\frac{5}{7} = 2$

2 POINTS EARNED

ROUND 2



BLACK RED BLACK

1×-5

$-5 \div 9 = -\frac{5}{9} = -1$

-1 POINTS EARNED

TOTAL SCORE

ROUND 1	2
ROUND 2	-1
TOTAL	1

LEVEL W HIGH-IN

CONCEPT: ORDER OF OPERATIONS
INTEGERS

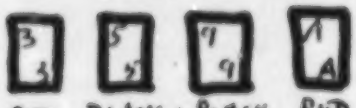
SET-UP: SAME AS ADD-IN

HOW TO PLAY: DEAL 4 CARDS TO EACH PLAYER. PLAYERS ARRANGE THEIR CARDS [AND MUST USE X (TIMES) + (ADDITION) AND − (SUBTRACTION)] TO COME UP WITH THE HIGHEST POSSIBLE NUMBER. NO PARENTHESIS ALLOWED

SCORING: THE NUMBER OBTAINED IS THE AMOUNT OF POINTS EARNED

WINNER: PERSON WITH HIGHEST AMOUNT OF POINTS WHEN ALL CARDS ARE USED WINS

EXAMPLE:

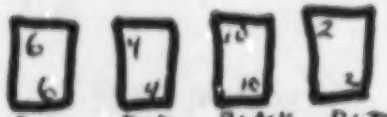


RED BLACK BLACK RED

−3 5 9 −1

9 × 5 − −3 + −1 = 47

47 POINTS



RED RED BLACK RED

−6 −4 10 −2

−4 × −6 + 10 − −2 = 36

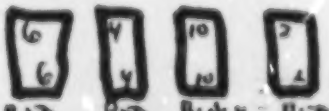
36 POINTS

VARIATION: LOW-IN

SAME AS HIGH-IN BUT MAKE LOWEST SCORE POSSIBLE

LOWEST SCORE WINS

EXAMPLE



RED RED BLACK RED

−6 −4 10 −2

10 × −6 − −2 + −4 = −62

−62 POINTS EARNED

LEVEL X SQUARE ROOT IT

CONCEPT: RECOGNIZE PERFECT SQUARES ; HENCE SIMPLE SQUARE ROOTS

SET-UP: REMOVE FACE CARDS
TENS ARE TEN
ACES ARE ONE

HOW TO PLAY: DEAL ONE CARD TO EACH PLAYER. PLAYERS DECIDE IF THEY HAVE A PERFECT SQUARE. IF YES, THEY TAKE THE SQUARE ROOT, THEN SET THEIR CARDS ASIDE. PLAYERS THAT DO NOT HAVE A PERFECT SQUARE KEEP THEIR CARD. ANOTHER CARD IS DEALT TO EACH PLAYER AND THEY TOTAL THEIR CARD(S). IF THEY NOW HAVE A PERFECT SQUARE. THEY SET THEIR CARD(S) ASIDE AFTER TAKING THE SQUARE ROOT. SOME PLAYERS MAY NOT GET A PERFECT SQUARE, SO AFTER THEIR TOTAL IS OVER 100, THEY SET THEIR CARDS ASIDE AND START OVER

SCORING: WHEN YOU HAVE A PERFECT SQUARE THE SQUARE ROOT IS THE AMOUNT OF POINTS EARNED

WINNER: HIGHEST POINT TOTAL AFTER A PREDETERMINED TIME LIMIT WINS

EXAMPLE:

ROUND 1

PLAYER 1

PERFECT SQUARE
$\sqrt{9} = 3$
3 POINTS

PLAYER 2

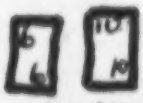
NOT A PERFECT SQUARE
KEEP CARD
NO POINTS

ROUND 2

PLAYER 1

NOT A PERFECT SQUARE
KEEP CARD
NO POINTS

PLAYER 2



6 + 10 = 16
PERFECT SQUAR
$\sqrt{16} = 4$
4 POINTS EARNE